Appl. No.

: 10/594,170

Filed

July 20, 2007

AMENDMENTS TO THE CLAIMS

1.-6. (Canceled)

7. (Withdrawn) A method of treating, stabilizing or preventing a lower than desired total body weight or a lower than desired percentage of body fat in a mammal comprising:

selecting a mammal in need of treatment for having a lower than desired total body weight or a lower than desired percentage of body fat; and

administering to the mammal a compound that decreases Shp2 activity.

- 8. (Withdrawn) The method of Claim 7, wherein said compound decreases Shp2 activity in neurons of said mammal.
- 9. (Withdrawn) The method of Claim 8, wherein said compound decreases Shp2 activity in neurons of forebrain of said mammal.
- 10. (Withdrawn) The method of Claim 9, wherein said compound decreases Shp2 activity in neurons of hypothalamus of said mammal.
- 11. (Withdrawn) The method of Claim 7, wherein said compound decreases a level of Shp2 mRNA or protein, an activity of Shp2, a half-life of Shp2 mRNA or protein, or a binding of Shp2 to a leptin receptor.
- 12. (Withdrawn) The method of Claim 11, wherein said compound is a Shp2 antagonist.
 - 13. (Canceled)
- 14. (Withdrawn) A screening method for determining a compound useful for treating, stabilizing, or preventing a lower than desired total body weight or a lower than desired percentage of body fat in a mammal, said method comprising

contacting a cell with said compound; and

measuring Shp2 activity in said cell in the presence and absence of the compound, wherein the compound is determined to treat, stabilize, or prevent a lower than desired total body weight or a lower than desired percentage of body fat if the compound decreases the level of Shp2 activity.

- 15.-25. (Canceled)
- 26. (Previously presented) A genetically modified mouse comprising a disrupted Shp2 gene, wherein said genetically modified mouse is homozygous for said disrupted Shp2

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gene, and wherein said genetically modified mouse exhibits an increased body weight in comparison to a mouse that does not have a disrupted Shp2 gene.

- 27. (Previously presented) The genetically modified mouse of Claim 26, wherein said Shp2 gene is disrupted in the forebrain of said mouse.
- 28. (Currently amended) The genetically modified mouse of Claim 26, wherein said mouse has an-early-onset obesity.
- 29. (Previously presented) The genetically modified mouse of Claim 26, wherein said mouse has a resistance to leptin.
- 30. (Currently amended) The genetically modified mouse of Claim 26, wherein the Shp2 protein level is decreased by 50-70% in the forebrain of said mouse.
- 31. (Currently amended) The genetically modified mouse of Claim 26, wherein triglyceride levels are increased in the serum of said mouse.
- 32. (Previously presented) The genetically modified mouse of Claim 26, wherein said Shp2 gene is absent in the forebrain of said mouse.
- 33. (Currently amended) A method of screening compounds for preventing or ameliorating obesity, comprising:
- (a) providing a genetically modified mouse comprising a disrupted Shp2 gene, wherein said genetically modified mouse is homozygous for said disrupted Shp2 gene, and wherein said genetically modified mouse exhibits <u>an</u> accelerated increase of body weight <u>compared to a mouse that does not have a disrupted Shp2 gene;</u>
 - (b) administering a test compound to said genetically modified mouse;
- (c) determining the effect of said test compound on the body weight of said genetically modified mouse; and
- (d) correlating a decrease in the body weight of said genetically modified mouse with an anti-obesity effect of said test compound.
- 34. (New) The method of Claim 33, wherein said Shp2 gene is disrupted in the forebrain of said genetically modified mouse.
- 35. (New) The method of Claim 33, wherein said Shp2 gene is absent in the forebrain of said genetically modified mouse.
- 36. (New) The method of Claim 33, wherein said test compound decreases Shp2 activity in neurons of said genetically modified mouse.

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37. (New) The method of Claim 36, wherein said test compound decreases Shp2 activity in neurons in the forebrain of said genetically modified mouse.

- 38. (New) The method of Claim 37, wherein said test compound decreases Shp2 activity in neurons in the hypothalamus of said genetically modified mouse.
 - 39. (New) The method of Claim 33, wherein said test compound is a Shp2 agonist.
- 40. (New) The method of Claim 33, wherein said test compound is capable of traversing the blood-brain barrier.
- 41. (New) The method of Claim 33, wherein said test compound is selected from the group consisting of a peptide, an antibody or fragment thereof, and a small molecule.
- 42. (New) The method of Claim 33, further comprising determining whether said test compound increases the level of a Shp2 mRNA or protein, a Shp2 activity, the half-life of a Shp2 mRNA or protein, or the binding of Shp2 to a leptin receptor.
 - 43. (New) The method of Claim 33, further comprising:

 determining the effect of said test compound on the percentage of body fat of said
 genetically modified mouse; and

correlating a decrease in the percentage of body fat of said genetically modified mouse with an anti-obesity effect of said test compound.